

cure obtained in cases of chronic para- and perimetric exudates which are not amenable to ordinary surgical treatment. All authors emphasize in their reports a rapid diminution of pain and a complete cessation of discomfort after four or five treatments. It is claimed by those who have given the method a fair trial that the exudative mass disappears by absorption. Among those who have had excellent results in this class of cases may be mentioned Polano, Büger, Keilmann, Peham and Keitler, Fett, Dresden, Stöckel, Gellhorn and others.

Kehrer has also suggested dry heat in infantilism of the female genitalia, in order to overcome the arrest of development by an improvement of the blood supply. To what extent the suggestion has been acted upon, and if so with what success, does not appear, although Gellhorn relates two cases in which he noted a regular and gradually increasing menstruation. Gelinsky has also recommended its use in post-operative paralysis and related good results, and others speak of its utility in post-operative adhesions.

Encouraging results continue to be published regarding the use of the antimeningitic serum of Flexner and Jobling. In a recent

THERAPY OF MENINGITIS.

paper (*N. Y. State Journal of Medicine*, June, 1909), Holt has reviewed the subject, analyzing the results obtained in a series of 523 cases of cerebro-spinal meningitis, the figures being furnished by Flexner. So far as the initial dose is concerned, it is clear that for any case no less than 30 cc. should be given; on the other hand, in older patients and in severe cases, as much as 45 or 50 cc. may be advantageously injected. Experience has further shown that instead of waiting to see whether or not improvement follows the initial injection, it is best to give a full daily dose for three or four days, to make the destruction of the bacteria certain. In fulminating types of the disease it is advisable to give the injections even at shorter intervals. The length of time that the treatment should be continued will necessarily vary with each individual case, but at all events all observers agree that the use of the serum should be continued until the cerebro-spinal fluid becomes absolutely clear.

This series of 523 cases consists of material from widely different sources, but in all instances the diagnosis was based on a bacteriological examination. Of this number 368 recovered and 155 died, giving a mortality of 29.6 per cent. The patients under two years of age show a mortality of 42.4 per cent, as contrasted with one of 90 per cent in another series of 61 cases not treated with the serum. The figures for the first fifteen years of life give a mortality of 12.7 per cent for 110 cases injected during the first three days; of 23.3 per cent for 120 cases injected from the fourth to the seventh day; and 44 per cent for 91 cases injected after the seventh day. Complications and sequelæ were very infrequent, es-

pecially when the treatment was begun early. Moreover, experience has shown that no improvement is to be expected in late cases in which all acute symptoms have subsided and in which chronic hydrocephalus is present.

Within the past few months two extensive articles have appeared on resuscitation of the heart by means of cardiac massage, one by von Cackovic in Germany, the other by Mocquot in France. While both these writers review most carefully

CARDIAC MASSAGE.

the extensive literature, their clinical and experimental experiences have been quite limited and they add but little to existing knowledge. Up to the present time cardiac massage has been employed in some fifty human cases, and it is claimed that it has been of value in eighteen. It has been more frequently used in apparent death from chloroform anesthesia than in any other condition. It must be confessed that the arguments of these authors are far from convincing, and the surgeon who seeks to obtain indications for the employment of this method will hardly be repaid for the expenditure of time which the perusal of these articles entails. He who reads critically must certainly have reason to question at times the necessity for such a drastic measure, although desperate conditions require desperate remedies.

To the surgeon, however, who delights in seeing the direct application to his art of physiological principles, these theses will strongly appeal. Kuliabio, Ringer, and more recently Sollman, have shown that the excised heart can be made to beat again even after several hours. But the central nervous system is not so tenacious of life and soon dies. Some admirable work on this subject has lately been done by Stewart, Guthrie, Burns, Pike and Dolley, and it has been demonstrated that death, without any return of reflexes, follows an occlusion of the cerebral arteries lasting seven and one-half minutes, although respiration has returned after an occlusion of one hour.

It is of interest to note that direct injections into the myocardium of atropia sulphate and other drugs have been tried. Spina has obtained excellent results by throwing a physiological salt solution, at 35° to 40° C, directly into the left carotid or brachial artery in the direction of the heart. He states that, in a dog of medium weight, as much as 200 cc. can thus be easily injected. Crile has recently amplified this method by adding adrenalin to the physiological salt solution.

From the foregoing two facts are evident: First, that death of central nervous tissue decidedly limits the time during which resuscitation can be accomplished; secondly, that the surgeon must have a quick and efficacious method of resuscitation in these conditions of apparent death, for time will not allow him to use a variety of procedures, or can he waste precious moments on those of doubtful utility. In view of the great importance of the subject, it is hoped that the best method of reanimation will soon be determined.